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DEMANDE INTERNATIONALE PUBLIÉE EN VERTU DU TRAITE DE COOPERATION EN MATIÈRE DE BREVETS (PCT)

(51) Classification internationale des brevets 5 : A01N 25/30, 25/24	A1	(11) Numéro de publication internationale: WO 90/09103 (43) Date de publication internationale: 23 août 1990 (23.08.90)
(21) Numéro de la demande internationale: PCT/FR90/00109 (22) Date de dépôt international: 15 février 1990 (15.02.90) (30) Données relatives à la priorité: 89/02092 17 février 1989 (17.02.89) FR (71) Déposant (pour tous les Etats désignés sauf US): ROUSSEL- UCLAF [FR/FR]; 35, boulevard des Invalides, F-75007 Paris (FR). (72) Inventeurs; et (75) Inventeurs/Déposants (US seulement) : MEINARD, Colette [FR/FR]; 24, avenue Petite-Suisse, F-13012 Marseille (FR). SUGLIA, Jean-Claude [FR/FR]; "Le Deven" n° 13, F-13112 La Destrousse (FR). TARANTA, Claude [FR/FR]; La Parade, Bâtiment Camus, F-13090 Aix-en- Provence (FR).		(74) Mandataire: TONNELIER, Marie-José; Roussel-Uclaf, 111, route de Noisy, B.P. 9, F-93230 Romainville (FR). (81) Etats désignés: AT (brevet européen), AU, BE (brevet euro- péen), BR, CH (brevet européen), DE (brevet européen), DK (brevet européen), ES (brevet européen), FR (brevet européen), GB (brevet européenne), IT (brevet européen), JP, KR, LU (brevet européen), NL (brevet européen), SE (brevet européen), US. Publiée <i>Avec rapport de recherche internationale</i> <i>Avec revendications modifiées</i>
(54) Title: NEW CONCENTRATED AQUEOUS EMULSIONS, PROCESS FOR PREPARING THEM AND THEIR USE IN THE FIELD OF PESTICIDES (54) Titre: NOUVELLES EMULSIONS AQUEUSES CONCENTREES, LEUR PROCEDE DE PREPARATION ET LEUR APPLICATION DANS LE DOMAINE PESTICIDE (57) Abstract <p>Concentrated aqueous emulsions, characterized in that they contain, in addition to the usual constituents of aqueous emul- sions and the active principle, a film-forming agent and a surface-active agent chosen from the group of acid phosphate ethers. The emulsions are used, in particular, in the field of pesticides.</p> (57) Abrégé <p>L'invention a pour objet des émulsions aqueuses concentrées caractérisées en ce qu'elles renferment en plus des consti- tuants habituels des émulsions aqueuses et du principe actif, un agent filmogène et un agent tensio-actif choisi dans le groupe des éthers phosphates acides. Les émulsions de l'invention trouvent notamment leur application dans le domaine des pesticides.</p>		

04/997, 043

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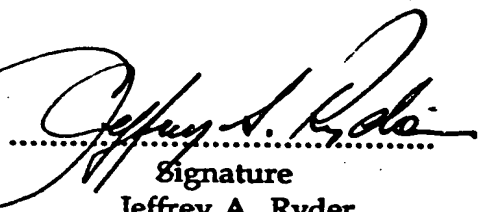
NOTICE OF ENTITLEMENT

We, ROUSSEL-UCLAF of 35, Boulevard des Invalides, F-75007, Paris, France being the applicant and the person nominated for grant of patent in respect of Application for an invention entitled "NEW CONCENTRATED AQUEOUS EMULSIONS, PROCESS FOR PREPARING THEM AND THEIR USE IN THE FIELD OF PESTICIDES" state the following:-

The actual inventors of the invention are as follows: MEINARD, Colette; 24, avenue Petite-Suisse, F-13012 Marseille, France; SUGLIA, Jean-Claude; "Le Deven" n° 13, F-13112 La Destrousse, France and TARANTA, Claude; La Parade, Bâtiment Camus, F-13090 Aix-en-Provence, France.

The basic application(s) FR 89/02 092 filed 17 February 1989 is the first application(s) made in a Convention country in respect of the invention.

The person nominated for the grant of the patent is the applicant of said basic application and would, if a patent were to be granted upon an application made by the said actual inventors, be entitled to have the patent assigned to it.


.....
Signature
Jeffrey A. Ryder
Patent Attorney for the Applicant


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Date

Aventis CropScience GmbH
Patent- u. Lizenzabteilung K 801
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Eing. 26. Nov. 2001
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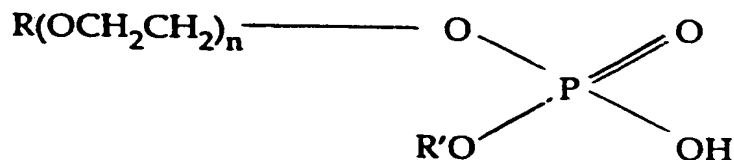
- (54) Title
NEW CONCENTRATED AQUEOUS EMULSIONS, PROCESS FOR PREPARING THEM AND THEIR USE
IN THE FIELD OF PESTICIDES
- (51)⁵ International Patent Classification(s)
A01N 025/30 A01N 025/24 A01N 053/00
- (21) Application No. : 51697/90 (22) Application Date : 15.02.90
- (87) PCT Publication Number : WO90/09103
- (30) Priority Data
- (31) Number (32) Date (33) Country
89 02092 17.02.89 FR FRANCE
- (43) Publication Date : 05.09.90
- (44) Publication Date of Accepted Application : 15.10.92
- (71) Applicant(s)
ROUSSEL-UCLAF
- (72) Inventor(s)
COLETTE MEINARD; JEAN-CLAUDE SUGLIA; CLAUDE TARANTA
- (74) Attorney or Agent
CALLINAN LAWRIE , Private Bag 7, KEW VIC 3101
- (56) Prior Art Documents
AU 566470 24492/84 AO1N25/04
AU 597314 65821/85 AO1N25/30
- (57) Claim

1. Concentrated aqueous emulsions comprising:
 - 0.01 g to 250 g/l of pyrethrinoid;
 - 0 g to 350 g/l of aromatic hydrocarbons;
 - 0 g to 350 g/l of phthalic ester;
 - 40 g to 200 g/l of acid phosphate ether;
 - 30 g to 200 g/l of 1,2-propanediol;
 - 30 g to 150 g/l of vinyl alcohol resins;
 - 40 g to 600 g/l of water.
2. Concentrated aqueous emulsions according to claim 1, wherein said pyrethrinoid is deltamethrine, permethrine, cypermethrine, alphasmethrine, tralomethrine, cyhalothrine, fenvalerate, cyfluthrine, flucythrinate, fluvalinate, fenpropathrine, tefluthrine and bifenthrine.
4. Preparation process for concentrated aqueous emulsions according to any one of claims 1 to 3, characterized in that:
 - a solution A is prepared by dissolving an active ingredient in a solvent or solvents and a surface active agent is added to it;
 - a solution B is prepared containing a film-forming agent, water and a co-

surface active agent

then solutions A and B are mixed together under agitation in order to obtain the desired aqueous emulsion.

5. Preparation process according to claim 4, wherein said surface active agent is selected from the group of acid phosphate ethers of formula:



in which R' represents a hydrogen atom, or represents an $\text{R}(\text{OCH}_2\text{CH}_2)_n$ radical, R representing an alkyl radical containing up to 18 carbon atoms, an aryl radical containing up to 14 carbon atoms, or an alkylaryl radical containing up to 24 carbon atoms and n representing an integer which can vary between 1 to 18.

6. Preparation process according to claim 3 or claim 4, wherein said film-forming agent is a thermoplastic vinyl resin.

OP: 05/09/90

APPLN. ID 51697 / 90

PCT AOJP DATE 11/10/90

PCT NUMBER PCT/FR90/00109

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(30) Données relatives à la priorité:

89/02092

17 février 1989 (17.02.89)

FR

(71) Déposant (pour tous les Etats désignés sauf US): ROUSSEL-UCLAF [FR/FR]; 35, boulevard des Invalides, F-75007 Paris (FR).

(72) Inventeurs; et

(75) Inventeurs/Déposants (US seulement): MEINARD, Colette [FR/FR]; 24, avenue Petite-Suisse, F-13012 Marseille (FR). SUGLIA, Jean-Claude [FR/FR]; "Le Deven" n° 13, F-13112 La Destrousse (FR). TARANTA, Claude [FR/FR]; La Parade, Bâtiment Camus, F-13090 Aix-en-Provence (FR).

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Publiée

Avec rapport de recherche internationale
Avec revendications modifiées

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(54) Title: NEW CONCENTRATED AQUEOUS EMULSIONS, PROCESS FOR PREPARING THEM AND THEIR USE IN THE FIELD OF PESTICIDES

(54) Titre: NOUVELLES EMULSIONS AQUEUSES CONCENTREES, LEUR PROCEDE DE PREPARATION ET LEUR APPLICATION DANS LE DOMAINE PESTICIDE

(57) Abstract

Concentrated aqueous emulsions, characterized in that they contain, in addition to the usual constituents of aqueous emulsions and the active principle, a film-forming agent and a surface-active agent chosen from the group of acid phosphate ethers. The emulsions are used, in particular, in the field of pesticides.

(57) Abrégé

L'invention a pour objet des émulsions aqueuses concentrées caractérisées en ce qu'elles renferment en plus des constituants habituels des émulsions aqueuses et du principe actif, un agent filmogène et un agent tensio-actif choisi dans le groupe des éthers phosphates acides. Les émulsions de l'invention trouvent notamment leur application dans le domaine des pesticides.

New concentrated aqueous emulsions, process for preparing them and their use in the field of pesticides.

The present invention relates to new concentrated aqueous emulsions, their preparation process and their use in the field of pesticides.

A subject of the invention is concentrated aqueous emulsions comprising:

- 0.01 g to 250 g/l of pyrethrinoïd;
- 0 g to 350 g/l of aromatic hydrocarbons;
- 0 g to 350 g/l of phthalic ester;
- 40 g to 200 g/l of acid phosphate ether;
- 30 g to 200 g/l of 1,2-propanediol;
- 30 g to 150 g/l of vinyl alcohol resins;
- 40 g to 600 g/l of water.

The concentrated aqueous emulsions of the invention find their use in numerous fields, notably the field of pesticides. They offer an immediate biological effect and a good duration of action, it is this immediate and persistent double action which is the essential characteristic of the emulsions of the invention and allows their use in the agricultural field where they can form a protective film over vegetation after the evaporation of the dilution water.

Also a subject of the invention is preparation process for concentrated aqueous emulsions characterized in that:

- a solution A is prepared by dissolving the active ingredient in a solvent or solvents and the surface active agent is added to it;
- a solution B is prepared containing the film-forming agent, water and the co-surface active agent

then solutions A and B are mixed together under agitation in order to obtain the desired aqueous emulsion.

More particularly a subject of the invention is the film-forming agent which can be a thermoplastic vinyl resin.

Thermoplastic vinyl resins are distinguished by their solubility in water and their insolubility in virtually all other organic solvents.

In addition, these resins perform simultaneously the dual function of thickening and stabilising agent and of film-forming agent.

Among the thermoplastic resins preferred, there can be cited the resins belonging to the family of polyvinyl alcohols or also the resins derived from polyvinylpyrrolidone. These resins perform simultaneously the dual function of film-forming agent and of stabilizing, thickening agent.

Quite especially a subject of the invention is the surface active agent which can be a phosphoric ester of formula:



in which R' represents a hydrogen atom, or it represents a $\text{R}(\text{OCH}_2\text{CH}_2)_n$ radical, R representing an alkyl radical containing up to 18 carbon atoms, an aryl radical containing up to 14 carbon atoms, or an alkylaryl radical containing up to 24 carbon atoms and n representing an integer which can vary from 1 to 18.

As an example of the preferred R radical, there can be cited the

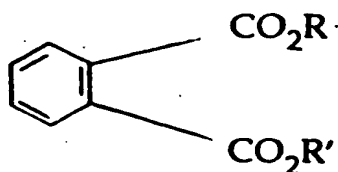


In a preferred embodiment the pair of solvents must show the following characteristics:

- to dissolve the active ingredient of course;
- not to be miscible with water;
- not to be too volatile so as to contribute to the persistence of the active ingredient;
- to avoid crystallization of the active ingredient during storage for long periods at low temperatures;
- to have a density in the region of 1.

The pair of solvents can thus be constituted on the one hand by an aromatic hydrocarbon such as for example "SOLVESSO 150", and on the other hand by a derivative of phthalic acid namely, a mono or diester of phthalic acid

and of formula:



in which R and R', identical or different, represent an alkyl radical containing up to 8 carbon atoms, for example a methyl, ethyl, n-propyl, isopropyl or n-butyl radical.

The co-solvent is preferably a diol such as for example 1,2-propane-diol.

In a preferred embodiment the concentrated aqueous emulsions prepared contain a pesticide.

Among the preferred pesticides, there can be cited the pyrethrinoids such as deltamethrine, permethrine, cypermethrine, alphasmethrine, tralomethrine, cyhalothrine, fenvalerate, cyfluthrine, flucythrinate, fluvalinate, fenpropathrine, tefluthrine and bifenthrine.

Also there can be cited the pyrethrinoids described and claimed in the European Patents 0038271, 0041021, 0048186, 0050534, 0110769, 01141012, 281439 and the French Patent 253639.

As an active ingredient the following can be considered suitable (1R,cis)-3-[(E)-2-fluoro-3-methoxy-3-oxo-1-propenyl]-2,2-dimethylcyclopropanecarboxylate of 1,2,3,4,5-pentafluoro benzyl; or

(1R,cis)-2,2-dimethyl-3-[(Z)-3-oxo-3-[2,2,2-trifluoro-1-(trifluoromethyl)-ethoxy]-1-propenyl] cyclopropanecarboxylate of (S)-alpha-cyano-3-phenoxy benzyl.

~~desired aqueous emulsion.~~

It is possible to add the following products:

- an anti-foaming agent, wetting products, anti-UV products;
- and/or bactericide products

5 in liquid or powder form in the aqueous or organic phase (depending on their solubility) during the preparation.

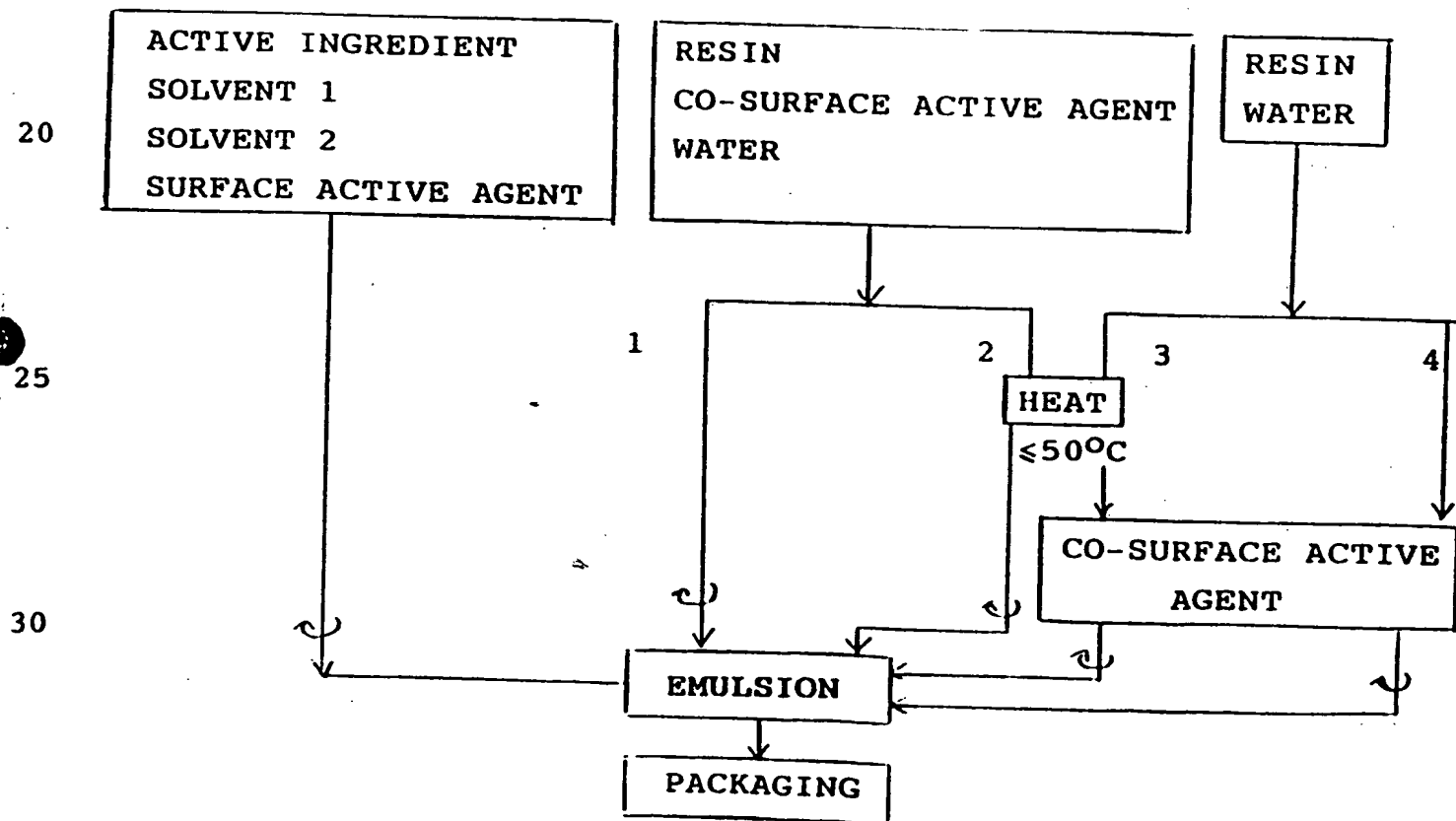
The following examples illustrate the invention without however limiting it.

Examples 1 to 6

10 The concentrated aqueous emulsions are made using as active ingredient :

- (1R,cis)-2,2-dimethyl-3-[(Z)-3-oxo-3-[2,2,2-trifluoro-1-(trifluoromethyl)-ethoxy]-1-propenyl] cyclopropanecarboxylate of (S)-alpha-cyano-3-phenoxy benzyl hereafter called product
- 15 A, in accordance with the following diagram :

OR



35 (1) Dissolving the polymer in the aqueous phase takes much longer.

(2) (3) After the "heating" operation a readjustment to ambient temperature of the aqueous phase is desirable before

proceeding with mixing.

(4) The solution probably shows the greatest speed of dissolution without recourse to a heat treatment.

The resume of the details of the constituents of the various emulsions prepared is given in the following table

		Concentrated - aqueous - emulsion (concentrations in g/l)					
	Ingredients of formulation	No. 1	No.2	No.3	No.4	No.5	No.6
	PRODUCT A	100	150	150	150	150	150
15	SOLVESSO 150	52.5	100	100	100	100	100
	METHYL PHTHALATE	127.5	0	0	0	0	0
	ETHYL PHTHALATE	0	100	100	100	100	100
	AGRILAN F 546	120	0	0	0	0	0
	EMPHOS CS 136	0	70	0	0	0	0
20	BEYCOSTAT QA	0	0	70	0	60	0
	ESGANE 6236 A	0	0	0	70	0	60
	1,2-PROPANEDIOL	110	108.5	108.5	108.5	104	104
	MOWIOL 4/88	90	0	0	0	0	0
	MOWIOL 18/88	0	0	0	0	48	48
25	LUVISKOL K 90	0	41.5	41.5	41.5	0	0
	WATER	450	480	480	480	488	488

SOLVESSO 150

aromatic hydrocarbon

AGRILAN F 546

EMPHOS CS 136

BEYCOSTAT QA

ESGANE 6236A

"Acid phosphate R-ether" type
surface active agents

MOWIOL 4/88

MOWIOL 18/88

Polyvinyl alcohols with a different
molecular weight but with the same
saponification number.

LUVISKOL K 90

Polyvinyl pyrrolidone with a K
number between 88 and 96

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Biological test :

The emulsions of the invention have been compared with a standard formulation of a concentrated emulsifiable type.

The tests have been carried out on apple tree acarida :

10 Panonychus Ulmi.

The formulations of the invention were shown to be superior in terms of impact and persistence of action.

After 20 days, the formulations of the invention are still effective unlike the standard formulations.

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The claims defining the invention are as follows:

1. Concentrated aqueous emulsions comprising:

- 0.01 g to 250 g/l of pyrethrinoïd;
- 0 g to 350 g/l of aromatic hydrocarbons;
- 0 g to 350 g/l of phthalic ester;
- 40 g to 200 g/l of acid phosphate ether;
- 30 g to 200 g/l of 1,2-propanediol;
- 30 g to 150 g/l of vinyl alcohol resins;
- 40 g to 600 g/l of water.

2. Concentrated aqueous emulsions according to claim 1, wherein said pyrethrinoïd is deltamethrine, permethrine, cypermethrine, alphasmethrine, tralomethrine, cyhalothrine, fenvalerate, cyfluthrine, flucythrinate, fluvalinate, fenpropathrine, tefluthrine and bifenthrine.

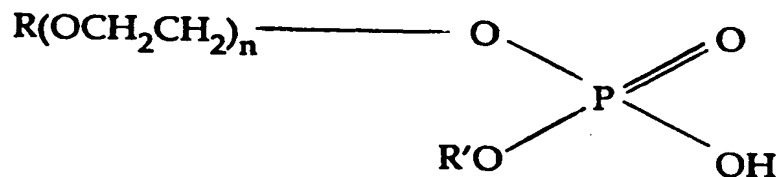
3. Concentrated aqueous emulsions according to claim 1 or claim 2, substantially as herein described with reference to any one of the Examples.

4. Preparation process for concentrated aqueous emulsions according to any one of claims 1 to 3, characterized in that:

- a solution A is prepared by dissolving an active ingredient in a solvent or solvents and a surface active agent is added to it;
- a solution B is prepared containing a film-forming agent, water and a co-surface active agent

then solutions A and B are mixed together under agitation in order to obtain the desired aqueous emulsion.

5. Preparation process according to claim 4, wherein said surface active agent is selected from the group of acid phosphate ethers of formula:



in which R' represents a hydrogen atom, or represents an $\text{R}(\text{OCH}_2\text{CH}_2)_n$ radical,

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R representing an alkyl radical containing up to 18 carbon atoms, an aryl radical containing up to 14 carbon atoms, or an alkylaryl radical containing up to 24 carbon atoms and n representing an integer which can vary between 1 to 18.

6. Preparation process according to claim 3 or claim 4, wherein said film-forming agent is a thermoplastic vinyl resin.
7. Preparation process according to claim 6, wherein said thermoplastic vinyl resin belongs to the family of polyvinyl alcohols.
8. Preparation process according to claim 6, wherein said thermoplastic vinyl resin is a derivative of polyvinylpyrrolidone.
9. Preparation process according to any one of claims 4 to 8, wherein said active ingredient is a pesticide.
10. Preparation process according to claim 9, wherein said pesticide is a pyrethrinoid.
11. Preparation process according to claim 10, wherein said pyrethrinoid is deltamethrine, permethrine, cypermethrine, alphas-methrine, tralomethrine, cyhalothrine, fenvalerate, cyfluthrine, flucythrinate, fluvalinate, fenpropathrine, tefluthrine and bifenthrine.
12. Preparation process according to any one of claims 4 to 12, wherein said active ingredient, (1R,cis)-3-[(E)-2-fluoro-3-methoxy-3-oxo-1-propenyl]-2,2-dimethyl cyclopropanecarboxylate of 1,2,3,4,5-pentafluoro benzyl; or (1R,cis)-2,2-dimethyl-3-[(Z)-3-oxo-3-[2,2,2,-trifluoro-1-(trifluoromethyl)-ethoxy]-1-propenyl] cyclopropanecarboxylate of (S)-alpha-cyano-3-phenoxy benzyl.
13. Preparation process for concentrated aqueous emulsions according to any one of claims 4 to 12, which process is substantially as herein described with reference to any one of the Examples.
14. Concentrated aqueous emulsions whenever prepared by the process as

IAN

claimed in any one of claims 4 to 13.

DATED this 30th day of April 1992.

ROUSSEL-UCLAF

By their Patent Attorneys:

CALLINAN LAWRIE

Michael J. Houlihan.

INTERNATIONAL SEARCH REPORT

International Application No PCT/FR 90/00109

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) *

According to International Patent Classification (IPC) or to both National Classification and IPC

Int. Cl.⁵ A 01 N 25/30, A 01 N 25/24

II. FIELDS SEARCHED

Minimum Documentation Searched *

Classification System

Classification Symbols

Int. Cl.⁵ A 01 N

Documentation Searched other than Minimum Documentation
to the extent that such Documents are included in the Fields Searched *

III. DOCUMENTS CONSIDERED TO BE RELEVANT *

Category *	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP, A, 0118759 (HOECHST AG) 19 September 1984 see page 5, line 14 - page 6, line 30; page 8, lines 27-29; claims 1-4,8	1-5,7
X	EP, A, 0224846 (HOECHST AG) 10 June 1987 see page 4, lines 6-12,35-37; page 6, lines 1-3; claims 1,2,4-6	1-4,7-9
A	EP, A, 0190995 (CIBA-GEIGY) 13 August 1986 see page 6, paragraph 3; claim 1	1-12
A	EP, A, 0022666 (SAMPSON) 21 January 1981 see page 1, lines 15-20; page 2, lines 3-8; page 4, lines 15-20; page 5, lines 21-23; claims 1,3,5	1-12
./.		

* Special categories of cited documents: ¹⁰

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"A" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search

23 May 1990 (23.05.90)

Date of Mailing of this International Search Report

21 June 1990 (21.06.90)

International Searching Authority

European Patent Office

Signature of Authorized Officer

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
------------	------------------------------------------------------------------------------------	-----------------------

A	EP, A, 0197293 (BAYER AG) 15 October 1986 see claims	1-12
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A	FR, A, 2599220 (SOCIETE MEDITERRANEENNE D'AEROSOLS et al.) 4 December 1987, see page 2, line 10 - page 3, line 15; page 4, lines 4,6,16-19; page 6, example 2	1-12
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ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO.

FR 9000109
SA 35004

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 15/06/90. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A- 0118759	19-09-84	DE-A- 3304677	23-08-84
		DE-A- 3346637	04-07-85
		AU-B- 566470	22-10-87
		AU-A- 2449284	16-08-84
		CA-A- 1227353	29-09-87
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		AU-A- 6055980	13-02-81
		CA-A- 1154606	04-10-83
		WO-A- 8100187	05-02-81
		GB-A- 2057265	01-04-81
EP-A- 0197293	15-10-86	DE-A- 3508643	18-09-86
		DE-A- 3512917	16-10-86
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		DE-A- 3661458	26-01-89
		JP-A- 61212325	20-09-86
		US-A- 4814167	21-03-89
FR-A- 2599220	04-12-87	None	

RAPPORT DE RECHERCHE INTERNATIONALE

Demande internationale N° PCT/FR 90/00109

I. CLASSEMENT DE L'INVENTION (si plusieurs symboles de classification sont applicables, les indiquer tous) ¹		
Selon la classification internationale des brevets (CIB) ou à la fois selon la classification nationale et la CIB CIB ⁵ : A 01 N 25/30, A 01 N 25/24		
II. DOMAINES SUR LESQUELS LA RECHERCHE A PORTÉ		
Documentation minimale consultée ⁶		
Système de classification	Symboles de classification	
CIB ⁵	A 01 N	
Documentation consultée autre que la documentation minimale dans la mesure où de tels documents font partie des domaines sur lesquels la recherche a porté ⁷		
III. DOCUMENTS CONSIDÉRÉS COMME PERTINENTS ¹⁰		
Catégorie ⁸	Identification des documents cités ¹¹ avec indication, si nécessaire, des passages pertinents ¹²	N° des revendications visées ¹³
X	EP, A, 0118759 (HOECHST AG) 19 septembre 1984 voir page 5, ligne 14 - page 6, ligne 30; page 8, lignes 27-29; revendications 1-4,8 --	1-5,7
X	EP, A, 0224846 (HOECHST AG) 10 juin 1987 voir page 4, lignes 6-12, 35-37; page 6, lignes 1-3; revendications 1,2,4-6 --	1-4,7-9
A	EP, A, 0190995 (CIBA-GEIGY) 13 août 1986 voir page 6, paragraphe 3; revendication 1 --	1-12
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>⁹ Catégories spéciales de documents cités: ¹¹</p> <p>« A » document définissant l'état général de la technique, non considéré comme particulièrement pertinent</p> <p>« E » document antérieur, mais publié à la date de dépôt international ou après cette date</p> <p>« L » document pouvant jeter un doute sur une revendication de priorité ou cité pour déterminer la date de publication d'une autre citation ou pour une raison spéciale (telle qu'indiquée)</p> <p>« O » document se référant à une divulgation orale, à un usage, à une exposition ou tous autres moyens</p> <p>« P » document publié avant la date de dépôt international, mais postérieurement à la date de priorité revendiquée</p> </div> <div style="width: 45%;"> <p>« T » document ultérieur publié postérieurement à la date de dépôt international ou à la date de priorité et n'appartenant pas à l'état de la technique pertinent, mais cité pour comprendre le principe ou la théorie constituant la base de l'invention</p> <p>« X » document particulièrement pertinent: l'invention revendiquée ne peut être considérée comme nouvelle ou comme impliquant une activité inventive</p> <p>« Y » document particulièrement pertinent: l'invention revendiquée ne peut être considérée comme impliquant une activité inventive lorsque le document est associé à un ou plusieurs autres documents de même nature, cette combinaison étant évidente pour une personne du métier.</p> <p>« & » document qui fait partie de la même famille de brevets</p> </div> </div>		
IV. CERTIFICATION		
Date à laquelle la recherche internationale a été effectivement achevée <div style="text-align: center; font-weight: bold;">23 mai 1990</div>	Date d'expédition du présent rapport de recherche internationale <div style="text-align: center; font-weight: bold;">21. 06. 90</div>	
Administration chargée de la recherche internationale <div style="text-align: center; font-weight: bold;">OFFICE EUROPEEN DES BREVETS</div>	Signature du fonctionnaire autorisé <div style="text-align: center;"> <div style="text-align: center; font-weight: bold;">J. TATTELBAUM</div> </div>	

III. DOCUMENTS CONSIDÉRÉS COMME PERTINENTS

(SUITE DES RENSEIGNEMENTS INDICUÉS SUR LA
DEUXIÈME FEUILLE)

Catégorie *	Identification des documents cités, avec indication, si nécessaire, des passages pertinents	N° des revendications visées
A	EP, A, 0022666 (SAMPSON) 21 janvier 1981 voir page 1, lignes 15-20; page 2, lignes 3-8; page 4, lignes 15-20; page 5, lignes 21-23; revendications 1,3,5 --	1-12
A	EP, A, 0197293 (BAYER AG) 15 octobre 1986 voir revendications --	1-12
A	FR, A, 2599220 (SOCIETE MEDITERRANEENNE D'AEROSOLS et al.) 4 décembre 1987 voir page 2, ligne 10 - page 3, ligne 15; page 4, lignes 4,6,16-19; page 6, exemple 2 -----	1-12

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**ANNEXE AU RAPPORT DE RECHERCHE INTERNATIONALE
RELATIF A LA DEMANDE INTERNATIONALE NO.**

FR 9000109
SA 35004

La présente annexe indique les membres de la famille de brevets relatifs aux documents brevets cités dans le rapport de recherche internationale visé ci-dessus.
Lesdits membres sont contenus au fichier informatique de l'Office européen des brevets à la date du 15/06/90
Les renseignements fournis sont donnés à titre indicatif et n'engagent pas la responsabilité de l'Office européen des brevets.

Document brevet cité au rapport de recherche	Date de publication	Membre(s) de la famille de brevet(s)	Date de publication
EP-A- 0118759	19-09-84	DE-A- 3304677	23-08-84
		DE-A- 3346637	04-07-85
		AU-B- 566470	22-10-87
		AU-A- 244928A	16-08-84
		CA-A- 1227353	29-09-87
		JP-A- 59186902	23-10-84
EP-A- 0224846	10-06-87	DE-A- 3542439	04-06-87
		AU-A- 6582186	04-06-87
		JP-A- 62132801	16-06-87
EP-A- 0190995	13-08-86	DE-A- 3503706	07-08-86
EP-A- 0022666	21-01-81	GB-A, B 2052260	28-01-81
		AU-A- 6055980	13-02-81
		CA-A- 1154606	04-10-83
		WO-A- 8100187	05-02-81
		GB-A- 2057265	01-04-81
EP-A- 0197293	15-10-86	DE-A- 3508643	18-09-86
		DE-A- 3512917	16-10-86
		AU-B- 573962	23-06-88
		AU-A- 5401486	18-09-86
		DE-A- 3661458	26-01-89
		JP-A- 61212325	20-09-86
		US-A- 4814167	21-03-89
FR-A- 2599220	04-12-87	Aucun	